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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/678,632	10/06/2003	Koji Takahashi	Q77799	7807

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EXAMINER	
GEISEL, KARA E	

ART UNIT	PAPER NUMBER
2877	

DATE MAILED: 03/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/678,632	TAKAHASHI ET AL.	
	Examiner	Art Unit	
	Kara E. Geisel	2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *14-21* is/are allowed.

6)☒ Claim(s) *1,4,7 and 8* is/are rejected.

7)☒ Claim(s) *2,3,5,6 and 9-13* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *0204*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Priority

Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in this application on October 6th, 2003.

Information Disclosure Statement

The information disclosure statement filed February 26th, 2004 has been considered by the examiner.

Specification

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 4, and 7-8 are rejected under 35 U.S.C. 102(e) as being anticipated by Hunter et al. (USPN 6,515,275).

In regards to claim 1, Hunter discloses a light source type discriminating method for discriminating a light source type photographic light source (column 1, lines 6-14), comprising providing first to third sensors respectively having spectral sensitivities corresponding to three primary colors (fig.

5, RGB), arranging a fourth sensor having a spectral sensitivity that does not overlap said spectral sensitivities corresponding to said three primary colors (I), said first to fourth sensors constituting an image pickup system (column 2, lines 49-52), and discriminating said light source type of said photographic light source by using information obtained by said first to fourth sensors (fig. 9).

In regards to claim 4, the first to third sensors are red, green, and blue (fig. 5, RGB), and the fourth sensor is a sensor having an absorption peak that exists on a longer wave side than an absorption peak of the red sensor by at least 30 nm and in a region of 700 nm or less (in a region is interpreted as examiner as "about", allowing the 710nm of the I sensor to apply).

In regards to claim 7, Hunter discloses an image forming method for reading image data of an input image with an image pickup system and performing predetermined correction of the read image data (column 1, lines 6-14), comprising providing first to third sensors respectively having spectral sensitivities corresponding to three primary colors (fig. 5, RGB), arranging a fourth sensor having a spectral sensitivity that does not overlap said spectral sensitivities corresponding to said three primary colors (I), said first to fourth sensors constituting an image pickup system (column 2, lines 49-52), and discriminating said light source type of said photographic light source by using information obtained by said first to fourth sensors (fig. 9), converting a sensor output obtained with the thus discriminated light source type, by using color conversion method defined by said sensor output obtained with said discriminated light source type and a sensor output obtained with a desired light source type, so that a light source sensor output value obtained with said desired type is obtained, and obtaining image data of said input image read by said image pickup system using the thus obtained sensor output value (column 1, lines 45-65 and column 2, lines 14-26).

In regards to claim 8, the first to third sensors are red, green, and blue (fig. 5, RGB), and the fourth sensor is a sensor having an absorption peak that exists on a longer wave side than an absorption

peak of the red sensor by at least 30 nm and in a region of 700 nm or less (in a region is interpreted as examiner as "about", allowing the 710nm of the I sensor to apply).

Allowable Subject Matter

Claims 14-21 are allowed over the prior art of record.

Claims 2-3, 5-6, and 9-13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

As to claim 2, the prior art of record, taken alone or in combination, fails to disclose or render obvious a light source type discriminating method for discriminating a light source type photographic light source wherein a fourth sensor is a sensor in which a value of an average minimum distance L_{min} indicating light source similarity between respective light sources whose types are to be discriminated is at least equal to a predetermined first reference value, in combination with the rest of the limitations of claim 2.

As to claims 5 and 9, the prior art of record, taken alone or in combination, fails to disclose or render obvious a light source type discriminating method for discriminating a light source type photographic light source or an image forming method for reading image data of an input image with an image pickup system and performing predetermined correction of the read image data wherein a fourth sensor is a sensor having an absorption peak that exists between respective absorption peaks of a G and B sensor and in a region of from 500-520 nm, in combination with the rest of the limitations of claims 5 and 9.

As to claim 6, the prior art of record, taken alone or in combination, fails to disclose or render obvious a light source type discriminating method for discriminating a light source type photographic light source wherein discriminating comprises obtaining a second reference value through one of

summation and integration of products of spectral energy distributions of light sources whose color temperatures are each based on known black body radiation, spectral energy distributions of fluorescent lamps whose spectral energy distributions are prescribed, spectral sensitivity distribution of a photometer system, and a spectral reflectance distribution expressed by a linear combination of predetermined output signal functions of first to fourth sensors, obtaining a spectral reflectance distribution that minimizes a difference between the second reference value and a measurement value obtained by each of first to fourth sensors, for each light source whose color temperature is based on known black body radiation and for each fluorescent lamp, and obtaining as a first evaluation value a sum of abnormal components of the thus obtained spectral reflectance distribution whose maximum values exceed 1.0, in combination with the rest of the limitations of claim 6.

As to claim 10, the prior art of record, taken alone or in combination, fails to disclose or render obvious an image forming method for reading image data of an input image with an image pickup system and performing predetermined correction of the read image data wherein a fourth sensor is assumed to be a sensor X, the color conversion method comprises a step of performing correction with respect to a gray portion in an input image or a portion corresponding to the gray portion such that a sensor output Eij^{ZE} (i: pixel position, j: R, G, B, X) corresponding to an estimated light source type becomes a sensor output Eij^{Z0} corresponding to a reference light source, in combination with the rest of the limitations of claim 10.

As to claim 14, the prior art of record, taken alone or in combination, fails to disclose or render obvious a light source energy distribution estimating method comprising obtaining spectral energy distributions of light sources that are each expressed by a linear combination of a plurality of predetermined functions, a spectral sensitivity distribution of a photometer system, and a third reference value determined by one of summation and integration of products of spectral reflectance distributions that are each expressed by a linear combination of a plurality of predetermined functions, obtaining a spectral reflectance distribution that minimizes a difference between the third reference value and a

measurement value obtained by a measurement step, and obtaining a sum of abnormal components of the thus obtained spectral reflectance distribution whose maximum values exceed 1.0, as a second evaluation value, in combination with the rest of the limitations of claim 14.

As to claim 18, the prior art of record, taken alone or in combination, fails to disclose or render obvious a light source energy distribution estimating apparatus comprising storage means for storing spectral energy distributions of light sources that are each expressed by a linear combination of a plurality of predetermined functions, a spectral sensitivity of a photometer system, and a third reference value determined by one of summation and integration of products of spectral reflectance distributions that are each expressed by a linear combination of a plurality of predetermined functions, spectral reflectance distribution calculating means for calculating a spectral reflectance distribution that minimizes a difference between the third reference value and a measurement value obtained through measurement with a measuring means, for each light source energy distribution linear combination, and evaluation value calculating means for calculating a sum of abnormal components of the thus obtained spectral reflectance distribution whose maximum values exceed 1.0, as a second evaluation value, in combination with the rest of the limitations of claim 18.

As to claim 21, the prior art of record, taken alone or in combination, fails to disclose or render obvious an exposure amount determining method wherein a light source energy distribution estimating method comprises obtaining spectral energy distributions of light sources that are each expressed by a linear combination of a plurality of predetermined functions, a spectral sensitivity of a photometer system, and a third reference value determined by one of summation and integration of products of spectral reflectance distributions that are each expressed by a linear combination of a plurality of predetermined functions, obtaining a spectral reflectance distribution that minimizes a difference between the third reference value and a measurement value obtained by a measurement step, and obtaining a sum of

abnormal components of the thus obtained spectral reflectance distribution whose maximum values exceed 1.0, as a second evaluation value, in combination with the rest of the limitations of claim 21.

Additional Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art made of record is Oda et al. (USPN 4,914,738), Nagata (USPN 5,298,935), Takahashi (USPN 5,636,143), Tsujimoto (USPN 6,201,932), Cooper (USPN 6,441,903), Takahashi (USPN 6,822,677), Ishimaru et al. (US Pubs 2003/0058350) and Noguchi (US Pubs 2003/0098916).

Oda discloses a light source type discriminating method for discriminating a light source type photographic light source, comprising providing first to third sensors respectively having spectral sensitivities corresponding to three primary colors, and discriminating the type of light source of photographic light by using information obtained by first to third sensors.

Nagata discloses a light source type discriminating method for discriminating a light source type photographic light source, comprising providing first to third sensors respectively having spectral sensitivities corresponding to three primary colors, arranging a fourth sensor, and discriminating the type of light source of photographic light by using information obtained by first to fourth sensors.

Takahashi discloses a light source energy distribution estimating method comprising obtaining spectral energy distributions of light sources that are each expressed by a linear combination of a plurality of predetermined functions, a spectral sensitivity distribution of a photometer system, and a third reference value determined by one of summation and integration of products of spectral reflectance distributions that are each expressed by a linear combination of a plurality of predetermined functions.

Tsujimoto discloses a light source type discriminating method for discriminating a light source type photographic light source.

Cooper discloses a light source type discriminating method for discriminating a light source type photographic light source, comprising providing first to fifth sensors respectively having spectral

sensitivities corresponding to different colors, and discriminating the type of light source of photographic light by using information obtained by first to fourth sensors.

Takahashi discloses a white balance correction method for adjusting a white balance, comprising providing first to third sensors respectively having spectral sensitivities corresponding to three primary colors, arranging a fourth sensor with a spectral sensitivity that does not overlap the spectral sensitivities of the first to third sensors, and adjusting the white balance by using information obtained by first to fourth sensors.

Ishimaru discloses a light source type discriminating method for discriminating a light source type photographic light source, comprising providing first to third sensors respectively having spectral sensitivities corresponding to three primary colors, and discriminating the type of light source of photographic light by using information obtained by first to third sensors.

Noguchi discloses a light source type discriminating method for discriminating a light source type photographic light source.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kara E Geisel whose telephone number is **571 272 2416**. The examiner can normally be reached on Monday through Friday, 8am to 4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr. can be reached on **571 272 2800 ext. 77**. The fax phone number for the organization where this application or proceeding is assigned is **571 273 8300**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Gregory J. Toatley, Jr.
SPE
Art Unit 2877

K.G.

KEG
March 16, 2006